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Meat Inspection.*

By G. HOWIE, F.R.C.V.S., Armstrong College, Aberdeen.

Before commencing my short paper, I wish first of all to thank you for the honour you have done me in asking a comparatively new member to submit a paper to this Division of the N.V.M.A. I feel quite sure I shall not be able to say much that will be of interest to the majority of the older members but, at the same time, I quite realise that all newcomers have to pay a sort of entrance fee by giving a paper, and I look upon this event as an ordeal to which one has to submit in order to prove whether or not one is worthy to be a member. Therefore, although my effort is a poor one, I live in the hope that it may not be judged too harshly.

I am glad, in a way, that you gave me an opportunity of doing something for this Division of the "National," however small and insignificant that something may be, for I believe every little helps in the long run, and no effort, however futile it may appear, is quite wasted. The National Veterinary Medical Association has gained a new lease of life during the last few years, and is waxing more and more virile as time goes on, thanks mainly to a number of enthusiastic lovers of their profession, who have given of their time, money and brains with their whole heart in order that the Veterinary Profession might be raised from the "slough of despond" in which it has been wallowing in the past. They have succeeded in the task they set themselves, to an extraordinary and undreamt-of degree, in proof of which we have the success of the 1924 Congress at Aberdeen, and the veterinarians are at last in a fair way to being allocated their rightful niche in the world's professions.

The members of the Council of the "National" cannot carry on by themselves. The continued virility of our rejuvenated association depends on the vitality of its divisions, and every member of every division, should consider it his duty to do as much as lies in his power to keep up the interest, whether it be by giving papers or demonstrations, or by assisting in the deliberations of the Councils and attending all the meetings, and thus giving loyal support to his President. Their individual efforts may appear insignificant, but when the efforts of all the members are combined, something useful is bound to emerge. Therefore, although my paper does not amount to much as a literary composition, I trust it may serve to stir up some to try to do their best to advance the status of their profession.

I have always found, in commencing to prepare a paper, that the most difficult part is the selection of a suitable subject. There are so many subjects from which one could choose, and, with the aid of numerous books of reference, one could write a fairly interesting paper on most subjects, even though one actually knew nothing concerning them in practice. At best they are merely re-hashed editions of subjects which have have been more fully and capably treated by the persons who have been working upon them.

I find the papers which produce most interest at a meeting, are those written by people who have had much practical experience in their subject, and some of the most interesting meetings I have ever attended, have been those where a certain number of the members described interesting cases encountered in their own practices. If members would only take the trouble to make a record of their unusual cases and then make a point of bringing them to the notice of their fellow practitioners at the branch meetings, they would be giving useful information to some, more especially the younger members, as these unusual cases are not generally recorded in textbooks; and perhaps they might gain some additional knowledge themselves. Much helpful information can be gained in this manner and if every member of the "National" would recount even one of his unusual cases, what a fount of new knowledge would be tapped.

Having been divorced from general practice for some considerable time, I have, perforce, had to fall back upon a subject in which I have had some little experience, and which I feel sure, is certain to assume ever increasing importance to the veterinarian in the very near future.

The subject about which I wish to say a few words is, "Meat Inspection." It is a section of veterinary knowledge which may, at first glance, appear to some, especially busy country practitioners, to be of very little importance, and one which may be quite conveniently forgotten. To my mind, however, I do not think it would be serving our interests if it is forgotten, when we take into consideration the recent issue by the Ministry of Health, of the new meat regulations which come into force as early as April 1st, 1925. It should be a subject that should loom large in the forefront of the mind of every veterinarian in the land.

Now is the time for the veterinarian to assume his proper place, as far as the inspection of meat is con-

*Presented to the North of England Division at Newcastle-on-Tyne, on February 28th, 1925.

cerned. If no action be taken at once, he is in danger of being relegated to the background, where he has been kept in the past. It will be his own fault, as it was in former years, if the same state of affairs continues.

Up to the present, the inspection of meat has been in the hands of the Medical Officers of Health and the Sanitary Inspectors or Inspectors of Nuisances and it will continue to be so unless we protest against it and protest with no uncertain voice.

The veterinarian is undoubtedly the only fit person to give an opinion as to whether a carcass of meat is suitable for human consumption or not, and yet, since 1875, the power to give such opinions has been vested in the Medical Officer of Health and the Inspector of Nuisances. This Gilbertian state of affairs must appear very curious to the authorities of other countries where the veterinarian is considered to be the only fit person to whom to appeal in all cases where there is any doubt as to the suitability of meat for human consumption. Our place in the Public Health Acts is a very humiliating one, and at the same time it is a reflection on our professional abilities. Why is our profession regarded in this light? Is it because the average veterinary surgeon is deemed unfit to give a final and correct decision as to whether a carcass is fit or unfit for food or is it because meat inspection can be *efficiently* carried out by anyone who has perhaps had a dozen lessons on the subject? The latter surely must be the correct supposition; if it is not, then the Ministry of Health has a very poor opinion of our professional abilities. I am, however, afraid that the present state of affairs was, in part, due to the veterinary authorities' own apathy, either because they were too modest and retiring in the past, or because the majority did not really care what happened so long as they were allowed to pursue their own individual course. In these days of trade unionism we can no longer afford to work individually, and, since our profession, as a whole, has been released from its mental aberration, let us see to it that the same state of affairs is no longer in evidence.

If the veterinary surgeon is not the fittest person, by reason of his college training and his active duties in practice, for judging the healthy and diseased conditions in the living and deceased animal, who is?

Efficient meat inspection is by no means easy, one soon discovers that fact when a large number of carcasses have to be examined in a short space of time, and I trust no veterinary surgeon may suffer from the delusion that he can easily inspect meat, without having previously given some time to the study of the subject. No two carcasses are exactly alike: text-books do not help to any great extent, and each case has to be judged on its merits and on the sum-total of the lesions noted.

In some of the larger towns, meat inspection has been carried out by a veterinarian for a number of years, but even in these enlightened cities, his judgment is not considered final, and the owner of the carcass can, if he so desires, call in the Medical Officer of Health. In cases where this does occur, the Medical Officer, as a rule, will support his Veterinary Inspector, but, nevertheless, it is not a position of which to be proud; it is very galling and, to say the very least, humiliating.

In smaller towns and country villages, meat inspection has been a very perfunctory affair. In fact, it is non-existent in many places and, where a pretence of inspection is in force, it is carried out by the sanitary inspector. I have nothing to say against the sanitary inspector—most of them are very efficient men, but their duties are many and their training in pathology does not render them the fittest persons to decide whether meat is fit for consumption or not. They are too seriously handicapped on account of their inability to recognise lesions that would at once appeal to one trained in the anatomy, physiology and pathology of the domesticated animals and in the relationship existing between their diseases and human health. Their diagnostic abilities are limited by their training, and their knowledge of disease is at best elementary. They can be of great help in the ordinary routine work of meat inspection, but they should have a superior with a wider knowledge of pathology to whom to appeal. Otherwise, if left to make a decision in a difficult case, their judgment is likely to be biased, and the benefit of the doubt goes to the owner of the meat and not, as it should do, to consumer.

In spite of the fact that meat inspection requires a specialist to do the work efficiently, the Local Authorities are even now proposing to appoint lay inspectors for a duty which necessitates at least some knowledge of pathology. Trouble is bound to follow if this policy is adhered to, because the onus of passing carcasses of doubtful origin will fall on the layman's shoulders, whereas, formerly, when there was no meat inspection, the butcher himself was the person responsible to the public for the soundness of his meat.

Unless the inspector has a good knowledge of his work, he is liable to fail at the very outset. A clever butcher can test him in so many subtle ways, and the most damaging part of the test is that the butcher never tells him when he has given a wrong decision, when it is in his interest to keep silent, and the chances are that the mistake, once made, will be repeated every time the test is applied. The commonest test is to submit a carcass for inspection showing no very obvious lesions, but one which the owner knows perfectly well in his own mind should not be passed. If it should be passed the inspector is classified accordingly by the butcher, and also, if the meat is subsequently questioned, the obvious retort is that it was passed by the inspector.

I have known lay meat inspectors with only three reasons for the condemnation of meat; they usually go under the headings of tuberculosis, dropsy and putrefaction. Surely, meat inspection can be raised to a higher level than that. It certainly should be, but unless we bestir ourselves very quickly we shall not be allowed to give a helping hand.

There is, however, another side to the question that must not be overlooked and that is the ability of the average veterinarian to carry out meat inspection.

Even if the Public Health Authorities are persuaded that the veterinarian is the right and proper person for the duty, how many veterinary surgeons would consider themselves equipped with sufficient knowledge to go and efficiently and fairly examine fifty mixed carcasses and pass judgment on them at a moment's notice? I am afraid there are very few who would have that much confidence in themselves.

My main idea in bringing this subject before you, was to impress upon you two facts:—

1. That the veterinarian is the only right and proper person to pass judgment on meat intended for human consumption.

2. That meat inspection, if efficiently carried out, is not easy, and that the veterinary surgeon should see to it, without delay, that he gains some knowledge of the subject, so that none may fail when called upon to give decisions.

I personally know many veterinary surgeons whose knowledge of the subject is microscopic. They have a vague notion of the procedure that should be adopted but a definite routine method in inspection is entirely lacking. Meat inspection is now taught at the colleges and recently qualified veterinarians are much more suitably equipped for public health work, but even then the instruction given at college is only the ground-work and it is inadequate to enable one to come to a sound decision, in many cases. It is, therefore, in the interest of all veterinarians who feel they are somewhat rusty in this department to refresh their memories and gain as much practical experience as possible, so that they may not make mistakes when they are called upon to perform the duties of expert meat inspectors.

County inspectors should always bear in mind that any carcass they may examine and pass, is liable to be examined a second time, and it would not reflect much credit on their superior knowledge if a carcass passed by them should fail under the scrutiny of a lay-inspector.

To carry out the work efficiently one must not only have a good knowledge of pathology, but also a sound conception of the macroscopic appearance of a normal carcass, and in addition, a quick eye to detect all abnormalities in a short space of time, well developed olfactory organs, ability to make quick decisions and to adhere to those decisions once formed, and last, but by no means least, an abundance of tact.

It was not my intention to attempt to give a detailed description of the various methods to adopt when examining meat; it could not be done in a single paper. There are several very good books which will supply the details, but practical experience is worth more than all the literature on the subject. I shall merely content myself by attempting to give what I consider to be some useful practical hints to form a ground-work.

All meat inspection should be carried out, as far as possible, in the daylight, or in powerful electric light. It should never be done by the light of any other illuminant, since by artificial illumination finer alterations may escape notice, *e.g.*, acute stages of icterus can be easily overlooked.

The inspector must also have a definite routine procedure to adopt when examining carcasses and, by adhering to a constant method, less mistakes will be made and no important point overlooked. It is very surprising how obvious lesions can be missed if one works in a haphazard manner and, in the inspection of any foodstuff, one cannot afford to miss any abnormality.

One should, at the outset, endeavour to become acquainted with the normal appearance of every part of the body and organs of all animals used for human food. Very special attention should be paid to the organs, as their condition almost invariably furnishes useful and definite clues as to the state of health the beast was in before slaughter. It must always be remembered that meat may possess the freshest appearance, the red colour, the firm consistency or fat content, and the peculiar odour, and yet be unwholesome; the diseased condition only being revealed when the organs, or it may be only one organ, are examined, *e.g.*, in the absence of any viscera, a carcass dead from anthrax might quite conceivably be passed as sound.

If the inspector cannot be present at the slaughter of all animals, it should be required that all organs should remain attached to the slaughtered animal, as nearly as possible in their natural position. This cannot be carried out in the larger animals, unfortunately, with the exception of the kidneys and udder, but the organs can be left in their natural connection with one another. In the smaller animals, the spleen, kidneys, liver, lungs and heart, as well as the skin, can be left attached to the carcass. Where several animals are slaughtered at the same time, the organs should be hung up near the animal body to which they belong in such a manner that no interchange is possible.

The possibility of the substitution of healthy for diseased organs must be borne in mind at all times, as also the practice, which is fairly prevalent, of removing abscesses and certain parasites (echinococcus) in and upon organs, and tuberculous masses on the serous membranes and in the lymph glands. When this practice is detected is should be checked with severe punishment. Fortunately it is easy to expose such attempts to obscure the actual condition in diseased animals. The removal of masses of material from different organs is evidenced by loss of substance, and the frequently practiced removal of the pleura, on account of tuberculosis or inflammatory alterations, is to be recognised by the fact that the ribs and intercostal muscles come to be exposed and are not covered by a glistening membrane. Sometimes the slaughtermen attempt further to obscure their illegal operations by smearing the ribs with warm fat, but the pathological condition necessitating the removal of the pleura will still be recognisable from the fact that the lymph glands, which lie at the entrance to the thorax and are surrounded by fat tissue, exhibit alterations.

The most important characters of the normal or pathological condition of organs are size, colour, sheen, conspicuousness or inconspicuousness, as well as uniformity or lack or uniformity in the macroscopic structure, blood content of the cut surface, and consistency. Attention should be given to these characteristics in each organ. All organs should be carefully inspected and palpated. Certain parts, as, for example the lymphatic glands at the points of introduction of tuberculous infection, are always to be examined by means of an incision, but other parts, on the contrary, only in the case of the suspicion of an alteration.

As previously pointed out, the inspector must make it a rule to follow a certain course in the inspection of the various parts of a slaughtered animal. Each one can establish his own method, but the following may serve as a guide though it may obviously be altered at will with regard to the sequence.

1. *Lungs*—Examine by palpation, incision in a transverse direction, and incision of the mediastinal and bronchial glands.
2. *Heart*—Examine for tuberculous lesions and vegetations.
3. *Intestinal Organs*—Incise mesenteric lymph glands.
4. *Spleen*—Examine for tuberculosis and anthrax.
5. *Liver*—Examine by inspection, palpation and incision for tuberculosis, necrosis, echinococci, fluke, etc.
6. *Head*—Examine for actinomycosis and glands for tuberculosis.

By inspecting the foregoing first, one is enabled to form a very good opinion as to the condition of the carcass, and the extent of the disease in the offal governs, in a large degree, what the final decision on the carcass will be.

Having disposed of the offal, the four quarters have next to be examined. Commence by inspecting the inner aspect of the hind quarter. Note the condition of the peritoneum, incise the lymph glands, note their size, colour and condition. On passing downwards, examine the kidneys, the remains of the diaphragm should be raised—since otherwise, in the hanging carcass, tuberculous lesions, which are often found underneath, might be easily overlooked—the condition of the pleura should be noted and the thoracic lymph glands incised. The outside of the carcass should then pass under review. Examine all hæmorrhages, note whether they extend deeply into the underlying tissues, palpate the legs for fractures and, in females, incise the supra-mammary lymph glands. Finally, in tuberculous carcasses, subject the spinal column to a close scrutiny, as bone lesions can very easily be overlooked.

In calves, inspection takes place in the same manner, except that special attention should be given to the condition of the mesenteric and portal glands for tuberculosis, the navel and joints should be examined for septicæmic conditions, and the head and feet to guard against the possibility of passing a fœtus or immature animal.

When inspecting sheep, care must be taken to see that the animal was alive when it was bled. Note the blood content, incise the kidneys to see whether they are injected or œdematous and examine the kidney fat for putrefactive changes.

For pigs the same general routine is adopted, but special attention should be paid to the examination of the lymph glands of the head and neck, and the spinal column should be gone over very carefully, as tuberculous bone lesions are most common in this animal.

It is of supreme importance that meat inspectors should have a correct knowledge of the normal condition and position of the lymph glands, as they figure largely in the routine work of meat inspection, and their condition provides a very valuable guide in giving a decision, especially when a tuberculous carcass is under review.

It is not strange that such sensitive structures as the lymph glands should figure so largely in meat inspection when one considers that they act as a filtering apparatus and thereby purify the lymph stream from admixtures of foreign substances before it passes into the blood circulation. As a consequence they are the first structures to react to irritation, and one is enabled to tell, with a certain degree of accuracy, the disease from which the animal was suffering, according to their size, consistency or colouring. It must, however, be borne in mind, that the lymph glands of young animals are uniformly larger than those of older animals.

In conclusion, I should like to point out that it is not the obviously diseased carcass that presents difficulties in making a decision—these can be efficiently dealt with by the layman. It is those which show some evidence of disease without any definite and demonstrable lesions; these require to be examined by one who has a knowledge of pathology, in addition to practical experience in meat inspection.

A hurried decision should never be given in doubtful cases; it is fairer to both parties, the vendor and the consumer. It is always a good procedure to "quarter" the beast and allow it to hang another day, when a decision is often much more easily arrived at.

If there is a doubt as to the soundness of a carcass, let the benefit of the doubt go to the consumer.

I am well aware I have only touched upon the very fringe of meat inspection in this paper, but I shall be well satisfied if I have succeeded in establishing in the minds of a few what I primarily aimed to do, *viz.*, the condition that meat inspection should be solely under the supervision of the veterinarian and that he should see to it that he is suitably qualified to take up the rôle when he is given the opportunity.

Discussion.

Mr. C. Elphick, in opening the discussion, thanked Mr. Howie for his excellent paper, which would no doubt refresh their memories on a subject too soon forgotten after leaving college. He thought the Medical Officer of Health quite as competent as the veterinary surgeon to judge the fitness for food of a

carcass, but the veterinary surgeon was pre-eminently the man to judge the health of an aninal *intra vitam*. He wished Mr. Howie had touched on prepared meats, such as sausage and potted meat. He emphasised the need of co-operation between the Medical Officer of Health and the veterinary officer.

Dr. WHITLEY, speaking as a visitor, expressed the pleasure it had given him to be present at the meeting, and to hear the able paper given by Mr. Howie, with much of which he was in agreement. Referring to the question of dual control, he did not see anything Gilbertian in the fact the the Medical Officer of Health should be in the same position as the veterinary officer to decide whether a carcass was fit for the food of man. He could not agree that the veterinary officer occupied an intolerable position, and he was sure no Medical Officer of Health would wish to over ride his veterinary adviser. He felt that the veterinary profession was proceeding on wrong lines in seeking to divorce itself from the Medical Officer of Health. A separate department was bound to fail, because the responsible official of a town's health activities must be the Medical Officer of Health, and it was impossible to divide the responsibility. The Medical Officer of Health required the veterinary officer as a colleague. Dr. Whitley suggested that there should be more co-operation and collaboration between the Veterinary Societies and the Society of Medical Officers of Health, rather than dogged opposition. He agreed that the position was somewhat different in rural areas, where meat inspection was practically non-existent. In these cases he suggested that the county should be divided into areas, with a central abattoir for each district, with a veterinary officer to inspect food animals both *ante* and *post-mortem*.

The problem of the part time officer was a difficult one. While there were many good part time medical and veterinary officers, the system was not a success. For efficiency they should be whole time appointments. He cordially wished success to the veterinary profession, and concluded by referring to the advantages of the harmonious collaboration existing in Northumberland between himself and the veterinary inspectors.

Mr. W. JACKSON YOUNG said that Mr. Howie had given a fair survey of the subject of meat inspection in the time at his disposal. He had been specially interested in the lantern slides illustrating the lymph glands. The lymphatic system of the ox was a special study, of great importance in meat inspection. He thought the veterinary inspector was more favourably placed in that he had studied both the normal and abnormal, whereas the medical student did *not* study the lymphatic system of the bovine, ovine, and porcine species.

With regard to the question of dual control, he had an open mind. The veterinary surgeon was not referred to in the Public Health Acts of England and Wales, but was mentioned in the Scottish Acts. He thought they should press for the amendment of the Acts to include the veterinary inspector after the Medical Officer of Health.

The value of efficient meat inspection was of the greatest service to the state. On more than one occasion outbreaks of notifiable disease had been detected by this means, e.g., foot-and-mouth disease, sheep scab and anthrax. In the examination of the head, the tongue should always be dropped, so that lesions within the mouth should not escape detection. The examination of the popliteal gland in sheep was of great importance, as it was often found to be in a suppurating condition in foot rot cases.

Mr. Young had nothing to say against certificated meat inspectors, but he did not approve of the employment of untrained persons for this work. He was an advocate of the clearing house system for carcasses from country districts. He asked Mr. Howie what would be his procedure in the case of cavernous angioma in the liver of an old cow.

Mr. F. DAVIDSON said it was important not to condemn meat by rule of thumb methods. Each case must be dealt with on its merits, and one should constantly bear in mind both physiology and pathology. He said it would greatly aid the meat inspector if veterinary surgeons, when advising the slaughter of an animal for food, would send a certificate explaining the history of the case, and also advise their client to send in the offal. In rural areas he advised the appoint ment of detention officers, trained to distinguish the normal and abnormal, who would call in the veterinary officer to inspect meat detained. He congratulated Mr. Howie on the ground covered in so short a time.

Mr. H. PEELE said he was more in the position of a student, who had gained much useful information. He was impressed by Dr. Whitley's remarks regarding the position of the veterinary inspector, and felt that only by the collaboration and co-operation of the two professions would the true interests of the public be served. The new regulations would be of little value because of the existence of private slaughter houses. The staff available was inadequate for the proper inspection of meat, and until public abattoirs were adopted, the best results from the regulations could not be obtained.

Professor GILCHRIST said that, as a layman, he had always had a prejudice against sausage, which had been confirmed that afternoon. He emphasised the need of healthy stock to produce good meat. He expressed the pleasure derived from Mr. Howie's excellent paper.

Mr. F. DAVIDSON, referred to the optional marking of meat under the new regulations approved by the Ministry of Health. This scheme could only be satisfactorily carried out in public abattoirs, and therefore the marking of meat was only likely to be carried out in a few places.

Dr. WHITLEY asked Mr. Howie how he would deal with an extremely emaciated carcass, the food value of which was practically nil, but in which there was no visible evidence of disease.

Mr. HILL asked what was the proper course to adopt in actinomycosis, tuberculosis in a few glands, Johnë's disease in the early stages, and lightning shock.

Mr. HOWIE, in his reply, thanked the members for the cordial reception of his paper. Meat inspection was too large a subject to cover in one paper, and he had only touched the fringe. Replying to Mr. Elphick, the subject of prepared meat was a large one in itself, and the methods of detection were partly chemical. He agreed with Dr. Whitley that there should be more co-operation between the two professions. He did not wish to imply that the veterinary profession should divorce itself entirely from the medical. Collaboration meant progress; the reverse, revolution. His remarks were intended to apply chiefly to the rural areas, where meat inspection was inadequate. Nevertheless, he still maintained that until the veterinarian was specifically mentioned after the Medical Officer of Health in the Public Health Acts, with the same responsibility as the Medical Officer of Health in the inspection of meat, his position was intolerable.

Referring to the emaciated carcass, he would condemn for emaciation. In these cases it was often necessary to judge the vendor as well as the carcass.

Mr. Jackson Young had mentioned cavernous angioma. This condition might easily be missed, specially after 6—12 hours exposure to the air. In Birmingham the practice was to condemn the liver as unsightly, but he did not think any harm would arise through eating it. Country carcasses were a difficulty. The inspector had no knowledge of the *ante-mortem* condition, and he must protect the public. In such cases the owner might suffer through neglecting to send details.

In reply to Mr. Hill, each case must be judged on its merits. In actinomycosis the head and tongue would be condemned, and the carcass, if free from generalisation, passed. The sum total of the examination of the lymph glands would determine whether a tuberculous carcass should be passed, either in whole or in part. Johnë's Disease carcasses were most difficult. They were often emaciated and dropsical. It was wise to leave them till the second day in doubtful cases, when one might be better able to form an opinion. They were sometimes passed for boning, but the offal was condemned. He had no experience of lightning in its relation to meat inspection, but thought that the carcasses of animals which had only been paralysed might be passed.

Army Veterinary Service.

WAR OFFICE—LONDON GAZETTE—REGULAR FORCES.

March 31st—Capt R. C. G. Thwaytes is secd. for serv. with the Ind. Continuous Serv. Cadre (March 1st).

TERRITORIAL ARMY.

March 31st.—Maj. R. G. Anderson, O.B.E., F.R.C.V.S., T.D., resigns his commn. and retains his rank, with permission to wear the prescribed uniform (March 30th).

Auto-Intoxication of Advanced Pregnancy.

By OTTO MENIG, Washington.

(Reprinted from the March issue of the *Journal of the American Veterinary Medical Association.*)

(The following remarkable communication was made to the sixty-first Annual Meeting of the American Veterinary Medical Association, 1924. We make no apology for extracting this article *in extenso*; it is far too valuable to be submitted to compression).

Those who have experimented extensively with the auto-intoxications of advanced pregnancy of the bovine female assert that the bulk of evidence is distinctly in favour of the belief that the metabolic processes which are associated with high lacteal production are the essential predisposing causes of the auto-intoxications that are associated with the terminal period of pregnancy.

The complexity of the subject of the relationship of highly specialised activity to the auto-intoxication disturbances, and its immensity of detail, preclude but a superficial skimming-over of the subject at this time; but it is plainly evident that failure to comprehend this relationship, and to heed the fundamental facts arising out of that relationship, was one of the conspicuous faults of our veterinary ancestors.

The most significant fact pertaining to the auto-intoxication disturbances that associate with the terminal period of gestation is that liberal milk production, on common practical rations, fed in quantities to maintain the animal's body weight, is frequently accompanied by consistent losses of essential minerals from the animal's body.

CONDITIONS SURROUNDING DECALCIFICATION.

The effect of the losses of the body reserves is observed most noticeably under those conditions which tend to accentuate them. Thus, the evidences of decalcification are most common in those bovine individuals that have gone through a season of high lacteal production; in those that are living under the influence of a markedly artificial environment, and in those that are forced to subsist upon restricted rations.

The practical significance of the mineral losses which characterise the auto-intoxications of advanced pregnancy is thought to lie in the fact that, even though relatively small, they signify just so much decrease in the capacity of the animal to meet further like demands, and that they may come to possess added significance when the vascular system is depleted of its blood subsequent to the filling of the udder during the several days just preceding the termination of pregnancy.

Clinical experience indicates that the auto-intoxications of advanced pregnancy are characterised by an increased excretion of ammonium compounds at the expense of urea, and this, in turn, indicates that the primary predisposing factor in the causation of this disturbance is an acidosis.

The necessity of considering such factors as acidosis and the mechanism of acid neutralisation indicates

how complex the problem of auto-intoxication of advanced pregnancy really is, and how necessary it is that the relative importance of these various factors be clearly exposed.

The main facts in physiology regarding the acid and alkaline mineral elements are that the minerals enter the living body mostly as salts of sodium, calcium, potassium, and magnesium, and after performing a function entirely out of proportion to the amounts in which they appear, they leave the body.

It is unnecessary to dwell upon the necessity of the constancy of the reaction of the body fluids further than to relate that all of the various chemical reactions of the living animal, which constitute the basis of life, are extremely sensitive to slight alterations in the reaction of the body fluids.

Importance of Acidity and Alkalinity.

The vital reactions taking place in the bodies of animals require that certain necessary conditions be maintained, and none of these conditions is of greater significance to the vital processes than the state of the body fluids as regards acidity and alkalinity.

The cause of the approximate neutrality of the body fluids is largely the result of the physico-chemical equilibrium between the carbonic acid, sodium bicarbonate, mono-sodium phosphate, and di-sodium phosphate contained therein and maintained largely by the excretory capacity of the kidneys and the lungs.

When acids enter into the body fluids, an immediate reduction of the bicarbonate follows, and when the bicarbonate deficit continues to exist, a corresponding depletion of the bases of sodium, calcium, potassium, and magnesium accompanies the decalcification process.

It has been shown that the quantity of the ammonium salts in the urine is to be regarded rather as an indicator of an excessive quantity of acids in the body. The ammonia normally formed in metabolism, instead of being transformed into urea, combines with the excessive acid, and is excreted by the kidneys as the ammonium salts of those acids.

The usual measure of acid excess in the body fluids, then, is the ammonia and ammonium salts in the urine, and it will be seen that excessive quantities of ammonia and ammonium salts in the urine is an indication of the fact that the body has been well depleted of its essential mineral reserves. Thus, it is seen that not only the important buffers of the blood and the bases of sodium, calcium, potassium, and magnesium are used for the purpose of acid neutralisation, but that finally the ammonium mechanism of acid-neutralisation is called into play.

Observations on pregannt bovine patients indicate that the auto-intoxication of pregnancy is most apt to occur during the terminal period of gestation; that the susceptible animal is not able to maintain the body's mineral reserves, and that such an animal passes only a small amount of a highly concentrated urine which contains abnormally high percentages of ammonia and ammonium salts.

Starting with the fact that only a small amount of a highly concentrated urine is passed during the several days preceding the development of the evident manifestations of the auto-intoxication of advanced pregnancy, it is evident that the alkalinity mechanism of the animal's body is placed under a heavy load, and as a result, the animal's vitality is reduced.

Urine Secretion Diminished.

Since one of the most conspicuous manifestations of the auto-intoxication of advanced pregnancy is the diminution of excretion of urine during the several days preceding the first evidences of nervous dysfunctioning, we should first consider this fact in its relationship to decreased blood-pressure.

Experimentors inform us of the fact that as a rule the quantity of urine excreted varies directly with the quantity of blood that flows through the kidneys. Whenever more blood flows through the renal structures, therefore, the amount of urine is increased. Further, it has been conclusively shown that if the quantity of blood that flows through the renal structures be markedly reduced, a small amount of a highly concentrated urine is excreted.

The various factors which have been in operation during the period of gestation and which serve as causative factors in the reduction of blood-pressure are the direct result of two chief causes: (1) the heart and vaso-constrictor muscles have lost their tone because of the effects of demineralisation, and (2) the volume of systemic blood has been greatly reduced because now about one-eighth of the body fluid is in the udder.

The blood-pressure in the larger arteries is dependent mainly upon three factors: (1) the amount of blood pumped into the arteries by the heart, (2) the resistance offered to the escape of the blood from the arterial system, and (3) the volume of fluid in the arteries at any given time.

If the arteries are fully dilated, as in the auto-intoxication of advanced pregnancy, it is absolutely impossible for the heart to maintain the pressure, for the relatively small quantity of blood could not properly fill the arterial system.

In support of the statement that the auto-intoxication of advanced pregnancy of the bovine female is characterised by widespread vascular dilatation, decreased blood-pressure, renal under-functioning, and a subsequent retention of toxins, I refer to any case of parturient collapse.

The following is a brief account of the experiments that I have conducted upon bovine patients with the hope of testing the above generalisations and, perhaps, of yielding a new crop of facts.

Starting with the facts that only a small amount of urine was passed, and that the blood-pressure was exceedingly low, my attention was directed toward the relationship of blood-pressure to renal functioning and, therefore, I attempted by various means to regulate the capacity of the renal arteries.

The most effective means at my disposal for the purpose of regulating the capacity of the renal arteries

consisted in the application of compression clamps to those arteries. The clamps used in the following experiments were composed of aluminium, and were constructed like a hinge. When these clamps were applied to the arteries, any desired degree of compression could be exerted, and the capacity of the renal arteries fully regulated.

The first likely candidate that was presented for the purpose of experimentation was an aged "creepy"* cow that was in advanced pregnancy, and that had gone through several seasons of high milk-production.

The animal was confined in the standing position, laparotomy was performed, the clamps were applied to both renal arteries, and then the animal was treated as an ordinary laparotomy case.

During the first two days following the application of the clamps to the renal arteries, this animal showed considerable evidence of "shock," but the excretory organs were functioning quite normally.

After the evidence of "shock" had vanished the animal spent several days in comparative ease, eating and drinking freely, and excreting sufficiently. On the morning of the seventh day, however, she began to show evidence of the fact that the clamps were beginning to function at their renal artery position. The animal became restless, showing considerable excitement; began to tread with the hind feet; the legs gradually becoming more unsteady, until finally they were unable to carry the load, leaving the animal prostrate.

During the thirty-six hours following the first evidence of the fact that the clamps were functioning at their position on the renal arteries, this animal passed through all stages and grades of nervous misfunctioning from that of excitement to that of deep coma. She bellowed occasionally, moaned and groaned like an animal suffering from parturient collapse in the advanced stages and, finally, on the morning of the ninth day, she fell to the floor and was unable to rise. Up to the sixth day of the experiment, this animal seemed to be excreting sufficiently to maintain life, but during the next twenty-four hours only a small amount of urine was passed, and from that time until the termination of the experiment, only one-half pint of urine was excreted.

In that this subject showed every manifestation which characterises parturient collapse, I decided to treat her with the method that is in vogue. The clamps were quickly removed from their position at the renal arteries, the udder was inflated with air and the rectum was irrigated with a warm sodium chlorid solution. The animal made an uneventful recovery from the artificially induced parturient collapse, and she was able to stand on her feet in five hours after having been in the state of deep coma.

The above experiment was conducted about fifteen years ago, and from that time to now I have applied the clamps to the renal arteries of eleven different bovine subjects, five of which were aged cows that were in advanced pregnancy; one was an aged "creepy" bull; one was an open heifer; one was a steer, and three were young calves.

While all of the various animals in the above mentioned experiments developed evidences of intoxication as a result of the application of clamps to their renal arteries, yet only the five pregnant cows and the aged "creepy" bull developed the typical manifestations of parturient collapse. The experiment in which the aged bull was the subject was particularly interesting and instructive because of the fact that he developed as typical a train of symptoms of parturient collapse as any one has ever seen.

I infer from these experiments that the existence of acidosis is an essential predisposing factor in the causation of the auto-intoxication of advanced pregnancy, and that it depends for its active cause on under-functioning of the renals. The practical significance of these experiments is that we now know better than ever before the importance of the relationship that exists between blood-pressure and renal functioning, and the magnitude of the relationship that exists between renal functioning and the auto-intoxication disturbances of advanced pregnancy.

Further, these experiments naturally lead to the establishment of the theory that parturient collapse has for its predisposing cause the demineralisation processes which associate with seasons of high lacteal production, and the lowering of the arterial blood-pressure subsequent to the filling of the udder with blood, for its active cause.

Clinical experience indicates that the mammary arteries undergo a marked dilation during the several days just preceding the termination of the period of gestation. This dilation of the mammary arteries allows the udder to fill with blood and, as a result, there is a depletion of the quantity of blood in the systemic arterial system.

The idea that the auto-intoxications of advanced pregnancy that should have been eliminated by the various excretory organs, and would have been eliminated from the animal's body if the blood-pressure had been maintained, is thoroughly substantiated by the application of the compression clamps to the mammary arteries.

In order to substantiate the correctness of the conception that the auto-intoxications of advanced pregnancy are the direct result of the lowered blood-pressure subsequent to the filling of the udder just preceding the termination of pregnancy, I conducted an additional number of experiments.

The first experiment was conducted on a patient suffering from parturient collapse, and consisted in applying the clamps to both mammary arteries in such a manner as to prevent any blood from flowing through those vessels. The result was a rapid recovery from the collapse, and the manifestations of recovery simulated those which follow induced intramammary pressure.

To date, I have used the clamps on the mammary arteries of nine different subjects that were suffering from parturient collapse and the results were as

*A well-informed correspondent writes that he associates the term "creepy" with a listlessness or lack of vitality.

consistently satisfactory as those which follow induced intramammary pressure.

While the application of the compression clamps to the mammary arteries gives satisfactory relief from parturient collapse, yet it must be remembered that such a method is not practical except for the purpose of experimentation. The functioning of the clamps, as applied to the mammary arteries, however, demonstrates that induced intramammary pressure functions only as a factor to increase arterial blood-pressure.

Our problem thus being analysed in a general way, the important practical question which confronts the practitioner of veterinary medicine is: What therapy can be offered for the relief of the auto-intoxication disturbances of advanced pregnancy?

Recent experiments indicate that if certain alkalis be administered to patients excreting excessive quantities of ammonia and ammonium salts in the urine, the excessive excretion of ammonium compounds diminishes, and the excretion of urea correspondingly increases, and those who have experimented extensively with the auto-intoxications of advanced pregnancy assert that alkali therapy seems to be of distinct service in restoring the normal functioning of the various excretory organs.

The problem which presents itself as being most intimately associated with the proper and adequate therapeutic applications to cases suffering from auto-intoxications naturally resolves itself into the matter of selecting those agents which will re-establish the normal chemical equilibrium of the essential body fluids.

Therefore, we may lay it down as a general maxim that alkali therapy is invariably indicated in all of the various auto-intoxication disturbances of advanced pregnancy that are characterised by the excretion of an abnormally small amount of a highly concentrated urine.

Since the time of my first attempts at the artificial induction of parturient collapse, which is now about fifteen years ago, I have experimented extensively with parturient collapse, but since many of those experiments were not pure, I hesitate to draw conclusions other than to say that these experiments fully indicate that parturient collapse is an auto-intoxication of advanced pregnancy and that, for practical purposes, we may group all of the various conditions of advanced pregnancy that are characterised by convulsive, epileptiform and paralytic seizures that come on prior to, during, or after parturition, into one great group.

The practical significance of these experiments is that we now know how to induce parturient collapse by artificial means, but the thing of greatest importance is that these experiments afford a peculiarly characteristic illustration of the almost indispensable advantage of the ability to reproduce the auto-intoxications of advanced pregnancy at will and, further, they plainly indicate that the cause and the proper and adequate therapeutic procedure were unknown until the "sun of biochemistry" shed its beams over the world.

Malignant Jaundice in the Dog.

The following article, which appeared as long ago as March 31st, 1923, in the *Bazaar, Exchange and Mart*, from the pen of its agricultural correspondent, on the above subject, will be of interest to our readers in view of the publication of reports of the work recently carried out in connection with the disease.

"Jaundice is a yellowish staining of various tissues of the body with bile, and is a symptomatic of some disturbance of function of the liver. It is, in fact, not a disease of itself, but a symptom of a disease. It is commonly termed 'the yellows.' Although jaundice may occur as an occasional symptom of various poisons, such as phosphorus, mercury salts, bacterial toxins, disease of the structure of the liver, and sometimes cancer of the liver and pancreas, it is not in such circumstances very common in the canine species. Even tying of the common bile duct does not always occasion it, nor does the presence of the common round-worm *Belascaris marginata* in the bile-duct induce it. In cirrhosis, inflammation, and congestion of the liver it is rarely encountered.

"Some writers have invoked chills, gastro-enteritis, duodenitis with catarrh of the bile-ducts and thickening of their mucous lining so as to occlude the outflow of the bile and intussusception of the small intestine as frequent causes. But in the writer's researches these conditions occur very frequently without jaundice, and should they become associated with it they are the consequence of that condition which sets up jaundice and not the cause of it. In fact, they play no part in its causation.

"The epizootic or malignant jaundice attacking a great number of, if not all, the dogs in a large kennel is a frequent disease, the cause of which is unknown. It is a country disease, usually attacking sporting dogs, especially during the sporting season. It is unknown, or at least is rarely observed, in large towns or cities such as London, where distemper, gastro-enteritis, intussusception and chills are always in play.

"Many writers who are not acquainted with the disease, or who are very superficial observers of it, have described it as the biliary form of distemper, but as distemper abounds in large cities, where jaundice as an epizootic is rarely if ever seen, this evidence goes to negative that view.

"In South Africa, France, and other countries, where biliary epizootics are frequent among dogs, it has been settled that what was formerly taken to be the biliary form of distemper is a disease due to the *piroplasma canis* circulating and multiplying in the blood and conveyed from dog to dog by means of a tick or wood or shrub louse—*Ixodes ricinus*. But investigation of many cases of epizootic jaundice, as it occurs in this country, has as yet failed to demonstrate the presence of this parasite either by microscopical examination of the blood or by injection of the blood, serosity, or other discharges or effusions into 'clear' dogs.

"Some veterinary surgeons consider that the disease is due to a spirochæte similar to that which causes malignant jaundice or the so-called Weil's disease in man, but they have not brought forward sufficient evidence or any proof to support this view. It is true that there is always a spirochæte—*Spirochæta Regaudi*—living as a normal habitant in the walls of the dog's stomach.

"Japanese authorities who investigated Weil's disease in man found that disease was due to the *Spirochæta ictero-hæmorrhagica* transmitted by the urine of the brown rat (*Mus decumanus*). They also discovered a new form of disease which they termed manukayami, or seven-days' fever, caused by *Spirochæta hebdomadis*, and transmitted by the Japanese field-mouse (*Microtus montebelli*). Certain authorities seem to think that both these micro-organisms are the same, modified by their development in different animals, which act as their intermediate hosts.

"The findings of the Japanese scientists were confirmed by bacteriologists working in both the British and French armies, in which it occurred during the war, also on the Italian front and amongst the German troops.

"At the onset of jaundice in dogs there may be an irregular rise of temperature several days before the jaundice appears, after which the thermometer shows the temperature to be normal and sometimes sub-normal. There is loss of appetite, with fatigue, disinclination to move, sometimes great thirst, and even vomiting. As the jaundiced appearance increases in intensity the animal becomes drowsy, even comatose, and dies within three or four days of the jaundiced condition appearing. In such cases the gums around the teeth and the linings of the lips bleed, and often there is a discharge of bloody mucus from the anus. The urine is mostly of a deep orange colour or sometimes is bloodstained, and always contains albumin.

"The *post-mortem* lesions are identical with those usually found in piroplasmal jaundice or tick fever in France, South Africa, and elsewhere, and also in Weil's disease. Hæmorrhages are frequently noticed, and especially in the lung, where they may be scattered through the substance or become so numerous that they run into one another, and thus give the organ a uniform congested appearance. The mucous membranes of the mouth may be dirty, ulcerated, and show hæmorrhages, and those of the stomach and intestine may appear swollen or show a hæmorrhagic condition. Occasionally hæmorrhages or gross lesions are absent. Sometimes there are intussusceptions, generally *post-mortem* in origin.

"As to treatment, mild cases usually recover even without dosing, but the drastic drugging often forced upon the unwilling animal not infrequently makes such worse, and not rarely destroys life. In far advanced or malignant cases, in which there is great stupor, out of which it is difficult to rouse the animal, and also hæmorrhages, death mostly ends the existence of the animal in spite of any or all treatment.

"Early detection of the disease, as shown by dullness, loss of appetite, fatigue, and perhaps a yellow condition of the mucous membranes, is important in order to mitigate its severity by placing the animal at once under conditions as favourable as possible for recovery. The animal should be shut up in a warm, dry, and draughtless place and offered several times a day only equal parts of fresh milk and aerated soda-water.

"If there should be any vomiting a teaspoonful of bi-carbonate of soda in half a pint of warm water should be poured down the dog's mouth and repeated twice a day. Saline solution may be injected under the skin or per rectum when the vomiting is not checked. Where there is no vomiting small repeated doses of quinine, calomel, or dimol may be given as intestinal disinfectants.

"For piroplasmal jaundice a one per cent. solution of trypan blue is injected under the skin; it is a specific for this disease. Arrhenal is also used as a hypodermic injection."

Foot-and-Mouth Disease.

At a meeting of the Council of the Royal Agricultural Society on April 1st, Sir Merrik Burrell referred to the recently issued report of the Departmental Committee on the outbreak of foot-and-mouth disease in 1923-24. The Veterinary Committee of the Society had recommended that there should be one authority only for the administration of the Diseases of Animals Acts in each geographical county, and that view was accepted. The report, however, stated that, owing to the inherent difficulty of securing adequate representation of diverse and frequently conflicting interests, which, after very careful consideration, the Departmental Committee could see no method of overcoming, they thought the recommendation in favour of a joint committee must be abandoned.

It was decided to write to the Minister of Agriculture expressing the Council's regret at the reversal of opinion of the 1922 Committee by the Departmental Committee which had reported recently, and reaffirming "that the Council is strongly of opinion that legislation is urgently needed providing that there shall be one authority only for the control of animal diseases in each geographical county, which should be a joint Animals Diseases Committee representing the county and borough councils within the boundaries of such county."

* * * * *

Captain Pretyman, who was chairman of the Departmental Committee, in addressing the Agricultural Committee of the House of Commons recently, rebutted with emphasis the widespread belief that foot-and-mouth disease was brought to this country from Ireland. As chairman of the Departmental Committee, he knew that of all the millions of cattle brought from Ireland not one single case of foot-and-mouth disease had been traced to their introduction. But it was a fact that, passing from market to market as they did, the Irish cattle were one of the great causes of the spread of the disease. He was convinced that the more effective disinfection of railway trucks now provided explained, in a large measure, the comparative freedom of our herds of late. There could be no doubt that the disease was air-borne from foreign countries which were riddled with disease. The greatest danger was the pig, which fed upon imported foodstuffs such as parings of imported potatoes and the raw parings of meat from the Argentine, where foot-and-mouth disease was rampant.

The Agricultural Committee decided to appoint a sub-committee to deal with all questions under the Contagious Diseases of Animals Acts.

* * * * *

The following statement shows the number of outbreaks of foot-and-mouth disease confirmed by the Ministry and the amount of compensation paid in respect of animals slaughtered during each of the years 1921-1924:—

Year.	Outbreaks.	Compensation. £	s.	d.
1921	44	48,745	5	6
1922	1,140	803,529	11	7
1923	1,929	2,209,812	0	11
1924	1,440	1,389,696	11	7

Dogs' Protection Bill.

Lord Banbury, in moving, in the House of Lords on March 31st, the second reading of the Dogs' Protection Bill, said that a similar measure had three times passed the second reading stage in the other House, and on one occasion was reported to the House from a Standing Committee without amendment. The passing of the Bill would in no way prevent experiments from being made on other animals; all it would do was to prevent them from being made on dogs. He believed he was right in saying that the exclusion of dogs from both experimentation and demonstration was only lost on the Royal Commission on Vivisection which sat in 1906 and reported in 1912 by one vote. He was aware that very many medical men were against his Bill, but, on the other hand, many were in favour of it. The use of dogs in vivisection was unnecessary, as the knowledge which had been or could be obtained from that source could be obtained in some other way.

Viscount Knutsford, in moving the rejection of the Bill, suggested that if it were to be brought in year after year it would save a great deal of trouble if they could have a gramophone record so that they could enjoy the stereotyped arguments for and against the measure in the tea-room and prevent a waste of the time of the House. If the Bill passed no dog could ever be used for any experiment, even an experiment without pain or a feeding experiment or an experiment with a view to getting rid of distemper. He did not suppose that the whole medical and surgical world had ever been so unanimous on any subject as it was on that question. The Royal Commission on Vivisection, the report of which Lord Banbury had had the hardihood to quote, not only did not exclude dogs from experimentation, but actually included them, given them the same protection given to horses, asses and mules. They were all reluctant to use dogs for experiments, but they were compelled to do it because it was necessary for the advance of knowledge. Sir Frederick Treves, who was always quoted at anti-vivisection meetings, wrote:—"No one could be mofre keenly aware than I am of the great benefits conferred on suffering humanity by certain researches carried out by means of vivisection." It was almost unthinkable that that House should venture to set its opinion against that of the whole medical and surgical world. Diabetes was no longer a sentence of death on young boys and girls and was no longer an intolerable burden on adults, thanks wholly and solely to experiments on dogs. If they had a chance of lessening suffering, of benefiting mankind, it would be gross cruelty to refrain from gaining that knowledge, and England would be the laughing stock of the whole world if we were to lose the opportunity which our doctors and surgeons said was necessary to lessen and prevent suffering.

Lord Lambourne, in supporting the Bill, said that his enthusiasm waned for many things as he grew old, but there were two causes for which his enthusiasm grew from day to day and hour to hour. One was proper punishment, by which he meant corporal punishment for offences against young children, and the other was protection for his friend the dog from experiments on the living body. He denied that the progress of science would be hindered if this Bill was passed.

Attitude of Medical Research Council.

Lord Mildmay of Flete, who opposed the Bill, said that last year the weight of authoritative and considered opinion against the Bill was so heavy that the promoter did not dare to divide the House, but ran away from the Bill. It seemed that Lord Banbury was almost treating the House with scant respect when he asked them to discuss the Bill anew. He (the speaker) resented the implied imputation flung by the promoter against the opponents of the Bill that they were lacking in humanity. If he thought there was substance in the charges of cruelty he would be up in arms in defence of the dog; but after conscientious investigation, he indignantly resented methods of controversy which, outside that House, were based on unfounded suspicion and mere abuse. Only last Friday he had the honour of presiding over the Medical Research Council, in the absence of Lord Balfour, and he had been authorised to make known how strong and unalterable was the objection of its members to the Bill as likely seriously to impede the progress of medical science and greatly to retard the successful treatment of disease. To experiment on dogs, which were quite painless, was due the fact that rickets was now a completely preventible disease. Whereas, a short time ago one in three children in great towns were weakened, possibly crippled, and even deformed by rickets, it was reported last Friday at the Medical Research Council that there was so little rickets in London now that it was hard to find a case for a student to observe. Apparently Lord Lambourne was unaware of the interdependence of research work on human and animal diseases. They could not keep these two branches of research work in watertight compartments. The Medical Research Council had undertaken distemper work at Mill Hill farm because the malignant agent in distemper was a filter-passing organism, closely akin to that responsible for influenza in man. The work was going ahead with good promise. Meanwhile, filter-passing organisms were being hunted from various directions with remarkable promise of success, which was likely to lead to a flood of light, not only on the causes of distemper, foot-and-mouth disease and swine fever, but also on such human diseases as smallpox, chicken pox, whooping-cough and rheumatic and scarlet fever. His experience on the Medical Research Council and in connection with the management of the Middlesex Hospital had convinced him that in no walk of life were to be found more admirable qualities and beautiful characters than among those engaged in the work of medical research. He had been moved to make this comment by a letter in support of the Bill which had appeared in *The Times* last Saturday, in which a supporter of the Bill had made one of his periodical appeals to prejudice, professing to speak in the name of morality and ethics. It was senseless blasphemy to describe men of that kind, who were doing such beautiful, skilful and strenuous work, with the utmost consideration for the animals which they used in their painless experiments, as "peddling in entrails with blood-stained fingers" and guilty of "dreadful doings."

Lord Rayleigh said that some persons thought that a respectable minority of the medical profession were in favour of the Bill. He had had an opportunity of going through the names which the noble lord had brought forward a year ago as being on his side, and, so far as he had been able to learn, not one of those men had ever made a discovery of any kind. The point had been made that research had gone on in spite of the restrictions on vivisection. The fact was that the work had continued in the face of inconveniencies, and because nothing had been done so drastic as to stop it altogether.

Lord Buckmaster said that last year their lordships rejected this Bill without a division, and that afternoon no new fact or argument had been laid before them by the supporters of the measure. The real appeal of the Bill was to people who objected to vivisection altogether, and unless its supporters succeeded on those lines they could not succeed at all. Their lordships ought to hesitate a very long time before they attempted to limit the area of investigation into the means by which it might be possible to extend the wide boundaries of the great empire of learning, to check the progress of disease, and even to stay the swift and stealthy foot of death. (Hear, Hear.) That was the real meaning of the experiments carried out by vivisection.

Lord Desborough (Captain, Yeomen of the Guard) said the Home Office had had the fullest opportunity of reading and digesting all the evidence put forward in this matter, and they were as opposed to the Bill now as they were last year.

The Bill was rejected by 77 votes to eight.—*The Times.*

The Veterinary Record.

11th April, 1925.

STATE SERVICE—BUREAUCRATIC CONTROL.

When the panel system was introduced into medical practice one heard the opinion expressed amongst members of our profession that it would be advantageous if a state service could be introduced for veterinary surgeons. We are heartily glad that such a thing has never come about, and is not likely to come about in the lifetime of the present generation. We do not think that the panel system has greatly benefitted the medical profession from the point of view of medical science, nor has it improved the relation between doctor and client. On the contrary, it has gone some way towards making panel practice, in the hands of some, more or less a matter of routine, and has gone even further in eliminating that most valuable and esteemed personality—the family doctor. No doubt it has become a very distinct asset to a practitioner should he wish to dispose of his practice for this latter is now much less of a personal matter, and the goodwill of the practice may be closely ascertained, and accordingly valued and so passed on to the purchaser. The goodwill of the family doctor's practice was entirely personal, and therefore not always easy to be transferred.

Lately we have had a demonstration of what may and does happen when a professional body of men submits itself to state control. The " cases of Dr. X and Dr. Y " are outstanding examples of the tyranny and gross injustice which may be perpetrated by any man who may temporarily hold the office of Minister of Health. It will be remembered that " Dr. X " and " Dr. Y " were each accused of gross negligence in their treatment of cases. The charges were heard by a Committee consisting of a barrister and two medical men appointed by the Minister of Health. Both were acquitted. Regarding Dr. X, they deprecated the use of the word " negligence "—they considered he had made an error or judgment. Regarding Dr. Y, they said : " The complainants (London Insurance Committee) were not justified in making their representation . . . We recommend that the complainants be ordered to pay to the respondent (Dr. Y) his taxed costs of the inquiry." These conclusions were accepted by the Minister of Health, and he made an order that the London Insurance Committee should pay Dr. Y his taxed costs. Then having, as it appeared, discharged both the accused doctors, he proceeded to fine Dr. X £10, and Dr Y £20, by inflicting these fines on the London Insurance Committee (the accuser) for not providing " a proper standard of medical treatment," and reminding the Committee that these sums " should in accordance with Article 36 of the Medical Benefit Regulations be recovered " from Dr. X and Dr. Y by deduction from their remuneration.

The result is that a medical man finds that he may be fined, even *ruined*, for some small error of judgment in his practice at the instance of a Minister who may be totally ignorant of medical practice ; that he may be compelled to so carry on his work as to conform to an official standard which may change with each successive Minister of Health. That any doctor should be placed in such a position is preposterous. The General Medical Council cannot dictate to the humblest practitioner what methods he shall use in the treatment of disease. A doctor is answerable only to his own conscience and to his clients for the methods he adopts in his practice. The Ministry of Health has now set aside this principle of freedom and taken to itself powers greater than those conferred by the Medical Acts upon the General Medical Council. It is apparently attempting to institute a standard of treatment and diagnosis, and every one of the 12,000 panel doctors must accept the decisions of the Minister or face heavy loss or ruin. Thus it results that the panel doctor can and will be forced to take his orders as to the treatment of his patients (orders which may change with each minister), and yield up his right to form his own opinion, to act upon his own judgment and experience. Will the medical profession quietly give up their freedom, their right to use their own judgment, their right to benefit by their experience, and that power to exercise these rights which has been the means of evolving modern medical science ?

Let the Veterinary Profession take warning. We want no such bureaucratic control. We believe strongly in the necessity for more state appointments and we should greatly like to see a properly organised veterinary staff at the Ministry of Health but may the day be far distant when a government department may walk in and taken control of the general practitioner. On that day our profession will commence to wither and our freedom will be gone.

Royal College of Veterinary Surgeons.

OBITUARY.

ALLEN, W. T., M.R.C.V.S., 29 William Street, Windsor. Graduated London, July 16th, 1897. Died 1st April, 1925. Aged 52 years.

RELF, F. G., M.R.C.V.S., Nelson Street, Tralee, Kerry. Graduated Edinburgh, May 23rd, 1895. Died 25th March, 1925.

Mr. J. Y. CALDWELL, M.R.C.V.S., Stranraer.

The death has taken place of Mr. John Young Caldwell, M.R.C.V.S., Hanover Street, Stranraer. Mr. Caldwell, who was 61 years of age, took his degree as a veterinary surgeon at Glasgow. On leaving there he became assistant to the late Mr. J. Dunlop, and was serving in that capacity when the latter invented the famous Dunlop pneumatic tyre. Some thirty years ago Mr. Caldwell went to Stranraer, of which town he was a native, and there he built up an extensive practice. He is survived by a widow and grown-up family.

CLINICAL REPORT.

Partial Paralysis in Gelding, due to Cyst in Spinal Canal.

By D. MARSHALL, M.R.C.V.S., Otago, N.Z.

July 17th, 1924. Gelding, 4½ years' old, draft, in fair condition, seems weak in his work; when moved around crosses hind legs, sticks hind toes into ground. Temperature and pulse normal, appetite very good. Examination of fæces shows numerous *C. tetracanthum*.

No diagnosis made, beyond possibility of injury to the back through a fall, as colt had been working on steep ground. Drench of ol. tereb. ℥ii, ol. lini Oiss, after fasting, and colt to be kept in level paddock.

August 5th, 1924. No improvement in gait. Gelding looking lively and feeding well. Grs. iii strychinine hydrochlor, divided into 10 daily doses, given with ferri. sulph. and sodii bicarb. in food.

August 31st, 1924. Previous day horse had to be assisted to rise. He was down again this morning. In view of history, it was thought unprofitable to sling him, and he was destroyed.

Autopsy showed internal organs apparently healthy, except for results of mild parasitic invasion. Adult *C. tetracanthum* and *S. Edentatus* in cæcum and colon, larval cysts in mucous membranes of same, bot larvæ on membranes of stomach, slight endarteritis and a few larval parasites in anterior mesenteric trunk.

When spinal canal was opened, there was found, about origin of fourteenth rib, a tense firm cyst about 1¼ inches diameter, attached to floor of canal over an intervertebral joint. This was apparently an old hydatid cyst, containing slightly turbid liquid, and with a definite inner membrane. No young tapeworm was noted. The cord just at cyst appeared normal, but about 2 inches anterior to origin of sacral nerves, appeared softer and more pulpy than normal.

(Symptoms first observed 6-7 weeks previous.)

Cow Warranty.

JUDGMENT AND DECISION.

In the First Division of the Court of Session an appeal was heard in an action raised in the Sheriff Court at Kilmarnock by Robert Kyle, farmer, Laighpark, Paisley, against David Sim, farmer, Woodhill, Kilmaurs. Pursuer bought from defender a calving cow for £40 15s., in Kilmarnock Auction Mart, on June 9th, 1922. The animal was warranted "due to calve at her proper time and correct in her teats." After calving on June 17, the animal was found defective as a milk cow. The pursuer returned her and raised an action for damages. The defender contended that the defect was the result of bacterial infection occurring after the date of the sale, and that accordingly there was no breach of warranty.

In his interlocutor of 30th January, 1924, the Sheriff-Substitute found that the cow was purchased under a warranty to calve at the proper time, and correct in her teats. The cow calved at pursuer's farm on 17th June, 1922, correct in every way, except that when being milked on that date one of her teats yielded no milk. As the defender declined to cancel the sale, the pursuer returned the animal to the auctioneers. On a subsequent examination it was found that the animal was suffering from mammitis, which was not present at the date of sale, but was contracted about the date of calving. The Sheriff-Substitute found in law that the warranty on a sound construction implied that the cow would calve at the proper time and would calve correctly in all her teats, the defender thereby guaranteeing that the cow at the date of sale had previously suffered from no "weed" or other ailment which would prevent her milking freely after calving. The defender had satisfied the onus of proof that the defect was due to an intervening cause. His Lordship sustained the plea in law for defender, finding pursuer liable to defender in expenses.

Sheriff Lyon Mackenzie, K.C., upheld this finding and dismissed the action.

DECISION REVERSED.

The First Division of the Court of Session has sustained the appeal, holding the seller liable to repay the price under the warranty.

In a note the Lord President states that this particular guarantee is expressed in the following terms:—"Dairy cattle are warranted to calve at their proper time and correct in their teats only." The Sheriff-Substitute's finding, in my opinion, correctly interprets the warranty. What is guaranteed is (1) that the cow will bring forth the calf of which she is pregnant at the time of sale within a reasonable limit of her due time, and (2) that she will, upon calving, have her teats in such a state as to be able to perform their proper function in liberating the milk she will then be in a position to produce. In my opinion there is no justification for any limitation in the Sheriff-Substitute's finding in appending another to qualify or limit the first one. In both its parts the warranty looks to the calving time, which had it been intended to be limited to the state of affairs at the date of the sale, must have been worded very differently from what it was. The warranty, and the enhanced price which was paid in respect of it, secured the purchaser so far against the risks arising from the natural frailty of the expectant mother's physical constitution. If her failure to calve, or the incorrectness of her teats upon calving, were attributable to external injury by accident subsequent to the sale, or to any want of attention or negligence on the part of the purchaser or his servants, the warranty would not apply. But in the present case the incorrectness of her teats was due to an inflammation of the mammary gland incidental to the coming of her milk, and was just one of those misfortunes arising out of the natural frailty of a pregnant animal, which the warranty was intended to provide against. It may well be that mammitis is the result of bacterial infection, like the vast number of other ailments; but it is no more than the scientific explanation of a defect in health or soundness which overtook the cow. If the real question was as to whether the defenders had proved that the cow at the date of the sale, was free from any germ of the disease which manifested itself at the time of her calving, I should not have found myself able to agree with the Sheriff in holding that the onus of proof had been discharged. At the best the evidence presented for the defenders came to no more than a probability more or less high, but this is not enough to clear them of the obligations implied in the warranty.—*The North British Agriculturist.*

DIVISIONAL REPORTS.

North of England Division.*

Annual Meeting at Newcastle-on-Tyne.

The Annual General Meeting of the North of England Division, which was preceded by an informal luncheon, was held at the Armstrong College, Newcastle-on-Tyne, on 28th February, 1925.

The President, Mr. C. G. Hill, occupied the chair, and there were also present, Messrs. H. S. Elphick, Blackburn, Doughty, Christopher, Mitchell, Davidson, Howie, Wilkinson, J. W. Rider, Peele, Hicks, Thompson, Forbes, Towell, Jack, Gibson, C. Elphick, Pratt, Harper, Pickering and J. R. Rider.

Visitors.—Messrs. Livesey, W. Young, Professor Gilchrist (Armstrong College); and Dr. Whitley (Medical Officer of Health, Northumberland County Council).

The minutes of the previous meeting were read and confirmed.

Apologies.—Messrs. B. Hoadley and F. H. Sanderson.

Mr. C. Elphick was appointed to attend the Royal Sanitary Institute Congress, at Edinburgh.

The resolution from the Central Division, with reference to the establishment of a Veterinary Research Council, was ordered to lie on the table.

Mr. G. H. Livesey, then addressed the meeting, giving a brief account of the activities of the N.V.M.A. He expressed the opinion that the Tuberculosis Order would be re-introduced this year, and probably also the Milk and Dairies' Act would come into force. The Ministry of Agriculture had had something like one hundred resolutions from local authorities and other public bodies in favour of the Tuberculosis Order. A concise statement of the need for such an order had been drawn up by the "National," copies of which would be distributed to members of parliament.

Referring to the new meat regulations, Mr. Livesey pointed out that efforts were being made to get the word "inspector" defined plainly to mean that veterinary officers be included as inspectors of meat, otherwise the profession might be ruled out. He was hopeful that the "National" would achieve its object, and emphasised the necessity of gaining the support of the meat trade.

The Parliamentary Committee was an active body which would closely follow the proceedings of parliament, and examine all private bills in the interests of the profession.

Speaking of inspectors' fees, Mr. Livesey explained the great variation in the scales in force in different counties, and expressed the hope that the "National" would be able to assist inspectors in those areas where the remuneration was inadequate.

As to the finances of the "National," it was gratifying to find that the revenue for the year was only about £1 under £5,000, and the excess of income over expenditure was £999 6s. 8d., while the amount of the reserve was about £2,300. (These statements were received with applause.) The "National" was becoming a really live body.

Election of Representatives to the Council, N. V.M. A.—This matter was deferred to the next meeting.

Election of New Members.—Messrs. F. Christopher, and F. Davidson, both of Newcastle, were unanimously elected members of the Association.

Nominations.—Messrs. R. S. Wilson (Morpeth); T. Parker (Newcastle); D. Starkey (Middlesbrough).

Financial Statement.—The balance in hand at the end of the year was £30 12s. 6d., and the membership was 52. There was, however, a considerable sum owing to the Association in arrears of subscriptions.

Presentation to the Retiring Secretary.

The President said that, when at the last meeting, their Secretary, Mr. Jack, was unanimously elected President for the ensuing year, it was felt that it would be fitting to make some tangible recognition of Mr. Jack's long service to the Association. With that object in view, circulars were sent to all members, and the gratifying response to that appeal had permitted the new Secretary and himself to approach Mr. Jack, with easy minds, as to the form his presentation should take.

He had been unaware of Mr. Jack's artistic taste until he expressed a fondness for Dicksee's pictures. They had been fortunate enough to secure two signed proofs entitled "A Place in the Sun," and "On Velvet," and it was his pleasant duty to ask Mr. Jack to accept the pictures with the good wishes of the Association, not for their intrinsic value, but as an appreciation of services rendered. Mr. Jack had held the difficult post of Secretary for many years, and he was sure he would make an admirable President. He appealed to the members to support Mr. Jack during his year of office, and concluded by expressing the hope that the new President might be long spared to enjoy his gift. He was certain that contemplation of the pictures would call to mind happy memories of passed days.

The new President, Mr. T. T. Jack, on taking the chair, was received with applause. He said words failed him adequately to thank the members for this culminating kindness. The whole question of a presentation came to him as a complete surprise, and he would always treasure these pictures, not only for their intrinsic worth, but much more so for the spirit of good fellowship which had prompted the gift.

Formation of a Council of the Association.

Mr. C. G. Hill, having given notice at the previous meeting, now moved, "That a Council of this Association be formed, to consist of five members, with the President and Secretary as ex-officio members." He pointed out the need for a Council to deal with much of that routine business which now tended to overload the meetings, and thought that an active Council would be of the greatest benefit to the Association.

The proposal was seconded by Mr. Wilkinson, and carried.

Nominations for the Council were then made, and the necessary ballot having been taken, the following

* Received on March 9th, 1925.

were declared elected :—Messrs. H. Peele, C. G. Hill, C. Elphick and E. R. Gibson.

North Riding Inspectors' Fees.—Mr. HILL said that a meeting of inspectors had been held, at which a scale of fees had been drawn up, agreeing closely with those in force in Northumberland, Durham, and the West Riding, and the County Council had been asked to adopt this scale. He had personally approached the chairman of the executive committee, and had been assured of his support. He was hopeful that their object would be attained.

Mr. PRATT said that owing to the near approach of the County Council elections, the retiring committee did not wish to commit their successors, and the matter was to come up again at the meeting of the new committee. He thought this would not interfere with a satisfactory solution to the problem.

Mr. G. HOWIE then read his paper, " Some Practical Notes on Meat Inspection." At the conclusion of his paper Mr. Howie regretted that it had not been possible to obtain the desired specimens. He therefore exhibited a number of lantern slides illustrating the position of the various lymph glands in the ox and pig. (The paper and discussion are reproduced elsewhere in this issue.—Ed.).

Mr. C. ELPHICK then proposed the following resolution, which was seconded by Mr. HILL, and carried.

" That this meeting of the N.E.V.M.A., embracing representatives of the veterinary profession from the counties of Northumberland, Durham, and North Yorkshire, and all boroughs therein, respectfully suggest to the N.V.M.A. of Great Britain and Ireland, that the time is ripe for the interests of the veterinary profession to be safeguarded, and at all times supported ; especially in view of the imminent introduction of the Meat Regulations Order of 1925, and the probable re-introduction of the Tuberculosis Order and the Milk and Dairies' Act.

" The veterinary profession is peculiarly entitled by its training and experience to safeguard the interests of the public health in so far as meat inspection and the examination of live stock are concerned."

Mr. GIBSON expressed the appreciation of the Association to Mr. Hill for his conduct in the Presidential chair during the last two years. Mr. HILL made a suitable response.

The proceedings terminated with a hearty vote of thanks to Mr. Howie for his paper, a similar vote to the authorities of Armstrong College per Professor Gilchrist for the use of the room, and the refectory for the luncheon, and the usual vote of thanks to the President.

J. R. RIDER, *Hon. Secretary.*

Mr. William Woods, F.R.C.V.S., has been appointed, by Manchester University Council, a member of the Board of the Faculty of Medicine and Mr. R. M. Ferguson, M.Sc., as a member of the Board of the Faculty of Technology.

Mr. T. M. Inglis of Forfar, informs us that he has received notification that the three cryptorchid cases operated upon by him at Aberdeen made a good recovery.

Derbyshire Division.

A BOVINE SEPTICÆMIA OUTBREAK OF UNUSUAL TYPE.

A meeting of this Division was held at the Royal Hotel, Derby, on January 13th, 1925. The President (Mr. F. T. Prince) presided and there were also present Major T. V. Bagshaw, Messrs. J. C. Deville and J. C. Heather, and the Hon. Secretary (Capt. O. V. Gunning). The minutes of the last meeting were taken as read, and were signed.

The PRESIDENT, in the course of his address from the chair, said : Primarily I wish to thank you for the honour you have bestowed upon me in voting me to the Presidential Chair for 1925. When I was elected the first Secretary of this Association, I thought that post the most difficult one to fill, but I assure you, gentlemen, that trying to put into words what I should like to say to you this afternoon has caused me much more worry than the whole of my secretarial duties for a year or two. As we have a very important paper this afternoon by Major Bagshaw, I do not intend keeping you long over my address, but there are a few points I should like to bring to your notice, and I will therefore make my remarks as concise as possible.

One thing which strikes me in particular is the desirability of keeping together these small associations. They are a boon to the country practitioner, in that he gets to know his neighbours, and the amount of time he is called upon to absent himself from his duties does not have a serious effect upon his practice, which would not be the case were he to always attend the larger centres where the Parent Association holds its meetings. The former point is of paramount importance in districts where members of the Association are single-handed and have unqualified opposition. I was very pleased to read in the last few issues of the *Veterinary Record* that other associations are now taking up the question of fees for Veterinary Surgeons attending dog shows. No doubt all the members of this association will recall how we strived in the past to obtain a fee at all agricultural shows, and up to a point we were successful, but as some practitioners still officiate in an honorary capacity Utopia is not yet ; nevertheless, I hope the members of this association will still give the idealists their moral support in their efforts to get some pecuniary recognition for services rendered at all shows.

I sincerely hope we shall have a successful year, with plenty of useful papers and good attendances. (Applause.)

Mr. W. T. S. Atkinson (Castle Donington) was elected a member of the Association.

A letter from the Victoria Veterinary Benevolent Fund which had been held over from the last meeting, was again discussed, and it was resolved to forward to the fund £1 1s. 0d., which they hoped to send yearly.

In response to a letter from the Lancashire Division it was resolved to join as heretofore with the Lancashire, North Midland, and Yorkshire Divisions in the issue of an election circular nominating Mr. J. H.

Carter, F.R.C.V.S., of Henley-on-Thames, and Mr. C. Blackhurst, of Broughton, near Preston, as candidates for election to the Council of the R.C.V.S.

It was unanimously resolved that a letter of thanks be forwarded to the Lancashire Division for their kindness in entertaining the Derbyshire Division at the recent combined meeting, and to say that the meeting was much enjoyed by all those able to attend.

The subject of fees paid by Insurance companies was brought up by Mr. HEATHER for discussion, and the Secretary was instructed to write to the General Secretary to know if anything had been done by them to improve the scale.

Mr. Heather also raised the question whether members should support the R.S.P.C.A. when another practitioner had been in consultation, without consulting the practitioner. It was resolved to bring this up for discussion at the next meeting.

Major T. V. BAGSHAW then read the following paper :

A BOVINE SEPTICÆMIA OUTBREAK OF UNUSUAL TYPE.

Early in February this year, I was instructed by the county authorities to investigate a case of suspected anthrax at a farm on the borders of Staffordshire and Derbyshire. On arrival, I found two cows dead and two more in a dying condition.

The history of the dead animals was that they were all right the night before, one being nearly calved ; and were found dead next morning, the newly-calved one in a loose box, and the other in the cowshed with other cows.

I made an examination of the blood from both cows, staining with polychrome methylene blue. In both cases I noted, what might be expected, a mixed infection with a preponderance of bacilli. These bacilli were in considerable numbers, but not in the masses we often get in recently dead anthrax cases ; they were also somewhat larger than anthrax bacilli, and not so neat, if I may use the term. I was considerably puzzled as to the cause of death but, considering the history and the fact that two more animals were seriously ill, I decided, as a precautionary measure, to treat the outbreak as one of anthrax, and cremate, reporting to the Ministry and sending the usual material. I wish to emphasize the fact that I was not satisfied that it was anthrax, but thought "safety first" was the best procedure. The next day on visiting the farm the two other beasts were dead. Microscopic slides gave similar results, and the carcasses were put on the fire with the others; swabs being again sent to the Ministry of Agriculture.

The farmer, a client of ours, said he would like me to look at some more cows of his. I found one newly-calved cow holding her afterbirth, very lame in the left shoulder and feverish : temperature 104° F. The milk had a green tinge and smelt badly. I removed the afterbirth, syringed the uterus with warm antiseptic, and left febrifuges to be given, and liniment for the shoulder. The second cow was very lame—both forelegs sore and swollen about the coronets, and very swollen about the knees. I moved her to a loose box, gave salines, and ordered warm antiseptic poultices and emollient lotions to the sore parts.

No reply had been received from the Minister of Agriculture *re* the previous cows.

Two days later the heifer from which I had removed the placenta was dead. She had developed a swelling on the left shoulder, which rustled like a blackquarter swelling some hours before she died. I made a microscopic examination of the blood as before with the same results, and as no reply from the Ministry of Agriculture had yet been received, I had this carcass buried in lime.

The other cow was very swollen about the knees, and unable to rise unaided ; temperature 103° F. She would eat a little when propped up.

Several more cattle were now showing similar symptoms of lameness with sore coronets and swellings at the knees and hocks, and things looked decidedly unpleasant. At this time a reply from the Ministry of Agriculture came through to the effect that the disease was not anthrax. The question was, what was it ? At that time we were in the throes of foot-and-mouth disease, and I began to wonder if possibly I had an atypical outbreak of this. I decided to take no risks and as so many cattle shewed lesions round the coronets (no mouth lesions were present) I reported again to the Ministry of Agriculture, stating that many cattle were lame, with sore coronets. The Ministry's Inspectors soon came and said it was not foot-and-mouth, but was poisoning.

Well, I thought it was poisoning too, but of what nature I was uncertain. The drinking water had been recently analysed and passed pure. No recent painting had been done about the place, and I did not suspect mineral poisoning myself. Large quantities of antiseptic had been used about the farm yard as a preventative of foot-and-mouth for some time, and for some time this was suspected, but I was able to dispose of this as some cows became affected which had never been exposed to it. In my own mind I decided I was dealing with an oubtreak of septicæmia. Pretty vague, you will say, and I agree with you—it was vague, and so were my opinions. By this time seven more cows were affected, mostly good dairy cows just at calving : swollen knees and fetlocks, sore coronets, temperature 104° to 105° to begin with, falling to 102° to 103° later on. Numerous blood smears were examined with results as the first, or negative. No cows died suddenly after the first two.

The condition of the affected cows was awful : the knees became swollen to an immense size, as big as a football, and in many cases broke and became sloughing sores ulcerating on to the bone, a depth of 2 inches by 4 inches in some cases. In calf cows aborted or calved prematurely, and the milk of affected cows became green and stinking.

You may imagine I was considerably worried, and I went to some trouble to trace the cause. I learned one thing : part rumour and part fact, which caused me to think. This was that about thirty years before, when the farm was held by a different tenant, there had been an outbreak amongst the cattle when out

at grass, and many cows had died without any satisfactory reason being discovered. These cows were said to be taken ill after grazing on one particular field, and I discovered that my cows were being fed on hay gathered off this field. This might be a coincidence, or it might not. The present state of affairs showed: two cows dead suddenly, two dead (ill two days), one dead (ill four days), and nine cows badly affected. The sick cows were being given internal antiseptics, febrifuges and salines, with antiseptic fomentations to the affected parts. One strange feature of these cases was that, although some of these cows had now been lying for ten days, their eyes remained bright, clear and unsunken, a feature noticed throughout. I asked Mr. Prince, of Ashbourne, if he would come and give me his opinion of the outbreak, and together we spent some hours on the farm, going into details as to feed, ground, water, and everything we could think of. Malignant œdema was suggested, discussed, and finally put on one side, and we decided to send material away and try and get an autogenous vaccine made. I obtained material from an unbroken swelling on the hip of one cow, and forwarded it to Mr. Scott, F.R.C.V.S., of Bridgwater, with a short history of the case.

Mr. Scott very kindly wrote me at some length on the subject. He found on examination a bi-pola staining bacillus, simulating the *B. hæmorrhagic septicus* and *streptococcus brevis*, and he said he considered that the former was the root cause of the trouble. A few days later I received from Mr. Scott a vaccine for three cows, the organisms in the vaccine being:—(a) *B. hæmorrhagic septicus*; (b) *streptoccus brevis*, in series of three doses as follows:—

1st.	2 c.c., containing	(a)	10,000	million.
		(b)	20,000	,,
2nd.	3 c.c. ,,	(a)	15,000	,,
		(b)	30,000	,,
3rd.	5 c.c. ,,	(a)	25,000	,,
		(b)	50,000	,,

One dose injected every five or six days.

Some of the cows had now become so bad that slaughter was the only thing, and two of the worst were destroyed. On *post-mortem* only local lesions (*i.e.*, on knees, hocks and coronets) were noticeable, these appearing as masses of broken down muscular and cartilaginous tissue. The internal organs appeared healthy except for some congestion of the lungs, as would be expected from animals which had lain so long. The other animals were lifted up with slings and pulleys daily, and when up could stand for a while and eat a little. One more cow calved prematurely, became swollen on the side, and died in two days. The total at this date was six dead, two slaughtered, six affected badly, three affected slightly.

These three last were given the vaccine, and two recovered completely, the third recovered but was more or less crippled and had a persistent suppurating abscess on one hind leg, which healed up, burst and healed again, and was still present as a swelling one month ago.

In a further effort to trace the cause of the trouble I sent some samples of the corn and hay to Mr. Scott, with a request that they might be examined bacterially. This was done and Mr. Scott reported: in the corn nothing but saprophytic bacteria, but from the hay he isolated a bi-polar staining ovoid bacterium, morphologically identical with the bacterium of hæmorrhagic septicæmia, and (I quote Mr. Scott) "it is just possible that herein may be the root cause of your trouble."

Gentlemen, thirty years ago cattle on this farm died in considerable numbers for reasons unknown when grazed on a particular field.

Hay from this field had been fed to the cattle in the present outbreak. These cattle were reasonably suspected of dying from hæmorrhagic septicæmia, a germ morphologically identical with the organisms responsible for the disease was discovered in this hay—an interesting series of events which may or may not have direct connections; I should like your opinions as to that matter. Personally, I think we have sufficient evidence of direct connection. The worst of the remaining cattle were now slaughtered, and *post-mortem* revealed nothing but the local lesions. The healthy cattle had from the first been kept off the suspected hay, and turned out to graze whenever possible, the time of the year being March; and no further cases developed.

On July 30th I visited the farm with Mr. De Ville, and we examined all the dairy cattle (fifty to sixty) and fully half of these showed distinct lameness, the lameness being marked by a stiff stilty movement, and the cattle did not look as thriving as they should after months at grass.

Later on (August 26th) Mr. De Ville and I again examined the cattle; this time in consultation with an Inspector of the Ministry of Agriculture. The cattle were much the same as on the previous visit. The cow which showed most lameness was slaughtered, and a *post-mortem* made, but no naked eye lesions were present.

The Ministry's Inspector took material for investigation, and they have reported only negative results.

My own opinion is that it only requires that these cattle should be tied up again in the winter with little exercise, for the disease to break out again. I hope I may be wrong.

In view of the negative opinion of the Ministry of Agriculture I am reluctant to express one, but I think that the ground on this farm is infected with hæmorrhagic septicæmia. Perhaps you can help me with your experiences.

Discussion.

Mr. Heather thanked Major Bagshaw for his valuable paper. He thought that the fact of the milk going green was proof positive that the grass was the cause of the contagious bacillus found in the sample of hay. Mr. Heather remembered a particular case of anthrax he had had. After hearing Major Bagshaw's paper he had doubts if it was anthrax. The cattle had swollen legs, the trouble only occurred on a particular pasture, and all the animals grazed

on this pasture died. The difference was that in this case the green grass communicated the disease. In Major Bagshaw's it was the hay. He recalled another case in which stall-fed cattle started to swell in their legs—when turned out to grass they got perfectly all right. In a third case the feet of one animal were affected on the Saturday, and four more on the following morning had temperatures up to 106°. He reported foot-and-mouth, but it was found to be negative. Mr. Heather thought this might be similar to Major Bagshaw's case.

Mr. DE VILLE said he first thought the condition was due to the feeding, as the owner was a heavy feeder, and used a large amount of artificial foods, and he (Mr. De Ville) predicted that when the cattle went out to grass the disease would disappear. He therefore advised the owner to withhold the cake at grass, and let the cattle live on grass only. However, the swellings did not disappear at grass; in fact, several others fell lame, which proved conclusively that the artificial feeding was not the cause. There were no fresh cases of swollen legs after the cattle were turned out, but many developed lameness. There were no other symptoms, except that the cattle looked bad in themselves. He could not connect the condition with anything that had occurred thirty years ago; if so, what had happened to the trouble in the meantime? He thought the condition was a re-infection. In August there were 50 per cent. lame.

Mr. PRINCE said that what first struck him on seeing the cattle was the swelling on the knees and the lameness. The discharge evolving from the knees, etc., had an odour resembling that of metritis. He had first suspected the hard standings, but in the standings which would be most likely to have caused trouble the cattle were not affected. In his examination he had to strike out malignant œdema as being the cause, and also hæmorrhagic septicæmia: there were no stomach or bowel lesions.

The HON. SECRETARY said that, while it was a most interesting paper, it was not an easy one to discuss. He thought the second case mentioned by Mr. Heather might have been osteomalacia.

Replying, Major BAGSHAW thanked the members for the discussion. It was interesting to hear that Mr. Heather had experienced suspected anthrax cases, which closely simulated those cattle which died suddenly in his (Major Bagshaw's) case. With regard to the difficulty in associating this outbreak with an outbreak that occurred thirty years before, if a spore-forming organism could exist ten years underground, and then become virulent, why not thirty years? They had no proof that there had not been intermediate cases of a slighter nature. Though he did not go so far as to say that there was an actual connection between them, he thought that the circumstances associated with the second outbreak gave ample grounds for suspecting some connection. As to whether or not the outbreak was definitely one of hæmorrhagic septicæmia he could not say; but the organisms found in material taken from the affected animals were evidently very closely allied to

(Continued at foot of next column.)

Preventable Diseases in Farm Livestock.

SIR J. M'FADYEAN'S LECTURE TO THE FARMERS' CLUB.

"Preventable Diseases in Farm Livestock" was the subject of a paper by Sir John M'Fadyean, read at a recent meeting of the Farmers' Club at the Surveyors' Institute. He said that the diseases that had been eradicated from this country, and had thus proved their title to be termed preventable, were sheep-pox, cattle plague, contagious bovine pleuro-pneumonia, rabies and epizootic lymphangitis. Glanders had been brought to the verge of extinction, and the possiblity of its eradication might be held to have been proved. That result had to be put to the credit of the Glanders Order, which came into force on January 1, 1908.

As to swine fever, the slaughtering-out policy was abandoned in 1916 because it was enormously expensive and held out no prospect of the complete eradication of the disease. The change apparently had the approval of the owners and breeders of pigs, and, indeed, it was largely at their instigation that a different policy was adopted. Since 1916 an effort had been made to control the disease by throwing the loss which it entailed on the owners. When an outbreak occurred the apparently healthy pigs were not compulsorily slaughtered, but owners were encouraged to use anti-swine-fever serum to bring an outbreak to an end. There could be no doubt that frequent evasion of the law with regard to notification was largely responsible for the failure of the attempt to eradicate this disease.

If it be asserted that in this country anthrax is a preventable disease, the answer to the question why it was not being prevented was that the only methods that could be expected to prevent it would involve an expenditure much greater than the loss which it occasioned. And one might hold this opinion without ignoring the fact that anthrax had in recent years been prevented in New Zealand by an Order which prohibited the importation of bone manures or bones, unless these had been sterilised by steam in the exporting country, under the supervision of officers appointed by the New Zealand Government.

Discussing tuberculosis, the lecturer said that from a national point of view the disease had not been in any appreciable degree prevented in this country. Increased knowledge regarding it had served to make more obvious the immense difficulty, if not the actual impossibility, of stamping it out.

The evident failure of the Orders of 1913 and 1914 had little bearing on the question whether tuberculosis of cattle ought to be combated by Government measures that frankly aimed at its eradication. In his opinion, no measures that would hold out promise of success in stamping out the disease were at present practicable or justifiable when the cost involved in carrying them out was seriously considered. The difficulties of the problem were:—(1) The great hold which the disease had now established on the entire cattle population; and (2) the fact that full, or at least liberal, compensation would have to be allowed for the apparently healthy animals compulsorily slaughtered. For the success of efforts to eradicate the disease, it would be essential to discover and slaughter within a short period all the affected animals of any age, and that would create a milk famine and inflict a blow greater than any of those that had yet fallen on animal husbandry in this country.

(Continued from previous column.)

the bacillus of hæmorrhagic septicæmia, and the curative vaccines made from these organisms had a very beneficial effect. He considered that if the vaccine could have been used earlier, there would not have been so heavy a mortality.

E. MARRISON,
Hon. Secretary.

The hope for the future did not lie in the application of cattle plague measures to tuberculosis, but in disseminating among owners information regarding the means by which they might gradually reduce the incidence of the disease in their own herds. It would be time enough to consider the advisability of compulsory methods of stamping out the disease when such voluntary efforts had brought down the proportion of infected animals from the present 30 or 40 per cent. to 5 per cent.—*The Times.*

NOTES AND NEWS.

The Editor will be glad to receive items of professional interest in these columns.

Diary of Events.

April 17th—Meeting of the Mid-West and South Wales Division at Bath.
,, 21st—Meeting of the Derbyshire Division at Derby.
,, 24th—Meeting of the Lancashire Division at Liverpool.
May 7th—Last day for Nominations for election to Council R.C.V.S.
,, 21st—R.C.V.S. Voting Papers and Annual Report issued.
,, 28th—R.C.V.S. Voting Papers to be returned.
June 4th—R.C.V.S. Annual General Meeting. Earl Haig to attend to receive Diploma of Honorary Associate.

An advertisement for States Veterinary Officer for the Channel Islands will be found in our advertisement columns. Candidates should note that the duties include the examination of all animals arriving in Guernsey, the observation of animals in quarantine, testing in cases of suspected tuberculosis, the supervision of slaughter, the disinfection of premises, the supervision of arrangements for the prevention of spread of foot-and-mouth disease, the examination of all horses for export, and advising on all veterinary matters; as meat inspector, the examination of all locally killed and imported meat, which may not be sold without his certificate.

The appointment is part time only, but the holder of the appointment must not engage in private practice. The salary is £280 per annum, inclusive of travelling expenses. The holder may, however, if appointed by the American authorities, carry out the tuberculin testing of cattle for export to America. It is not a *sine qua non* that this officer shall hold the appointment of tester to the American Government, but it is stated that the probability is that he will be so appointed, when he will be allowed to retain the fees paid for such special service. It is estimated that such fees may approximate to £150 in any year.

We specially warn any intending candidate to assure himself of the practical certainty of obtaining this work for the American Government before accepting the onerous duties of States Veterinary Officer at the very inadequate salary of £280 per annum.

Foot-and-Mouth Disease.

At a recent meeting of the Council of the Central and Associated Chambers of Agriculture, Professor Penberthy presented the report of the Cattle Diseases Committee, and proposed that it should be sent to local chambers. The report dealt with the recommendations of the Departmental Committee which inquired into the outbreak of foot-and-mouth disease, and it was stated that a resolution had been received from the Cheshire Chamber expressing the opinion that the disastrous spread of foot-and-mouth disease from Blackpool and Fleetwood to Crewe and elsewhere in 1923 was entirely due to the action of the Veterinary Department of the Ministry of Agriculture in nullifying without sufficient investigation their own orders made only three days previously, and they viewed with the greatest dismay the approval of this action embodied in the report of the Departmental Committee.

Colonel Lyon (Cheshire) said the feeling was very strong in that county with regard to the report of the Departmental Committee. It seemed that the whitewash brush had been used. The report was very disappointing and they would be glad to have the subject considered throughout the country.

Mr. J. Sadler (Cheshire) said instead of cattle being slaughtered at Fleetwood because they were infected or in a diseased condition they were sent to Crewe, spreading disease among dairy farms in Cheshire and Shropshire.

The motion to send the report to local chambers was agreed to.

The Editor acknowledges the receipt of the following :—

Communications from Mr. J. Howard Jones and Captain J. P. Rice.

Report of a meeting of the Lancashire Division, from Mr. J. Spruell, Hon. Secretary.

ARE YOU FEEDING YOUR DOGS THE (W)RIGHT WAY?

A dog's condition depends upon his food! No one would deny this, and yet it is strange that few give correct feeding the attention it deserves.

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SAVE THE FOALS AND CALVES

JOINT-ILL IN FOALS.

Antistreptococcic Serum, Equine (P., D. & Co.), is reported to have yielded most gratifying results as a prophylactic of joint-ill (also known as navel-ill, umbilical infection, pyæmic arthritis), see *Veterinary Record*, Nov. 16, 1918, p. 164; Jan. 1, 1921, p. 3; Sept. 24, 1921, p. 771. Each in-foal mare should be given 15 c.c. of the serum hypodermically, about the tenth and third days before the expected date of foaling, and each foal should be given 7·5 c.c. of the serum within from 24 to 48 hours after birth, and a similar dose after a week's interval.

This serum is also of great value in the *treatment* of joint-ill, also of strangles, poll-evil, fistulous withers, and all forms of streptococcus infection.

Immunisation of the mare with vaccine is also recommended (see *Veterinary Record*, Mar. 6, 1920, p. 418). For this purpose, PARKE, DAVIS & CO.'s **Streptococcus-Staphylococcus Bacterin, Equine,** should be injected hypodermically a few months before the date of foaling.

WHITE SCOUR IN CALVES.

Anti-White-Scour Serum, Bovine (P., D. & Co.), is believed to be almost specific for the prevention or treatment of the very fatal infectious disease of newly-born calves (also foals, pigs and lambs) known as "white scour."

AS A PREVENTIVE, from 10 to 20 c.c. of the serum should be injected hypodermically as soon as possible after the birth of the animal in any district in which white scour is prevalent.

AS A CURATIVE, 20 to 30 c.c. of the serum should be injected hypodermically as early as possible, and repeated every six to twelve hours whilst necessary.

A distinguished veterinary authority, writing on the subject of "White Scour" in *The Veterinary Record* of April 29, 1916, states:—"I have robbed several outbreaks of their normally "high casualties by the early use of a serum as prepared by "Messrs. Parke, Davis & Co."

Further particulars will be sent on request.

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*Ref'ces.: Prof. Lander in "Veterinary Toxicology," Prof. Froliner, Neumann's "Parasites of Animals," Prof. Cave in the "Agricultural Gazette," 7th November, 1924, also the Veterinary Adviser to the "Farm and Stockbreeder," in the issue of October 27th, 1924.